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Smith

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[54] **ADJUSTABLE LOG SPLITTING HEAD**

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[51] **Int. Cl.**[6] **B27L 7/00**

[52] **U.S. Cl.** **144/195.1**; 144/195.8; 144/366

[58] **Field of Search** 144/4.6, 193.1, 144/195.1, 195.8, 366; 254/104

[56] **References Cited**

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4,078,591	3/1978	Syrjala	144/195.1
4,269,242	5/1981	Smith et al.	144/195.1
4,294,295	10/1981	Olin	144/4.6
4,353,401	10/1982	Schilling	144/195.1
4,371,019	2/1983	Jeffrey	144/195.1
4,371,020	2/1983	Barnes et al.	144/366
4,373,564	2/1983	Heikkinen	144/366
4,391,312	7/1983	Sakraida	144/195.8
4,685,495	8/1987	Freeman	144/195.1
4,860,806	8/1989	Brace	144/195.8
5,287,902	2/1994	Keantelot	144/366

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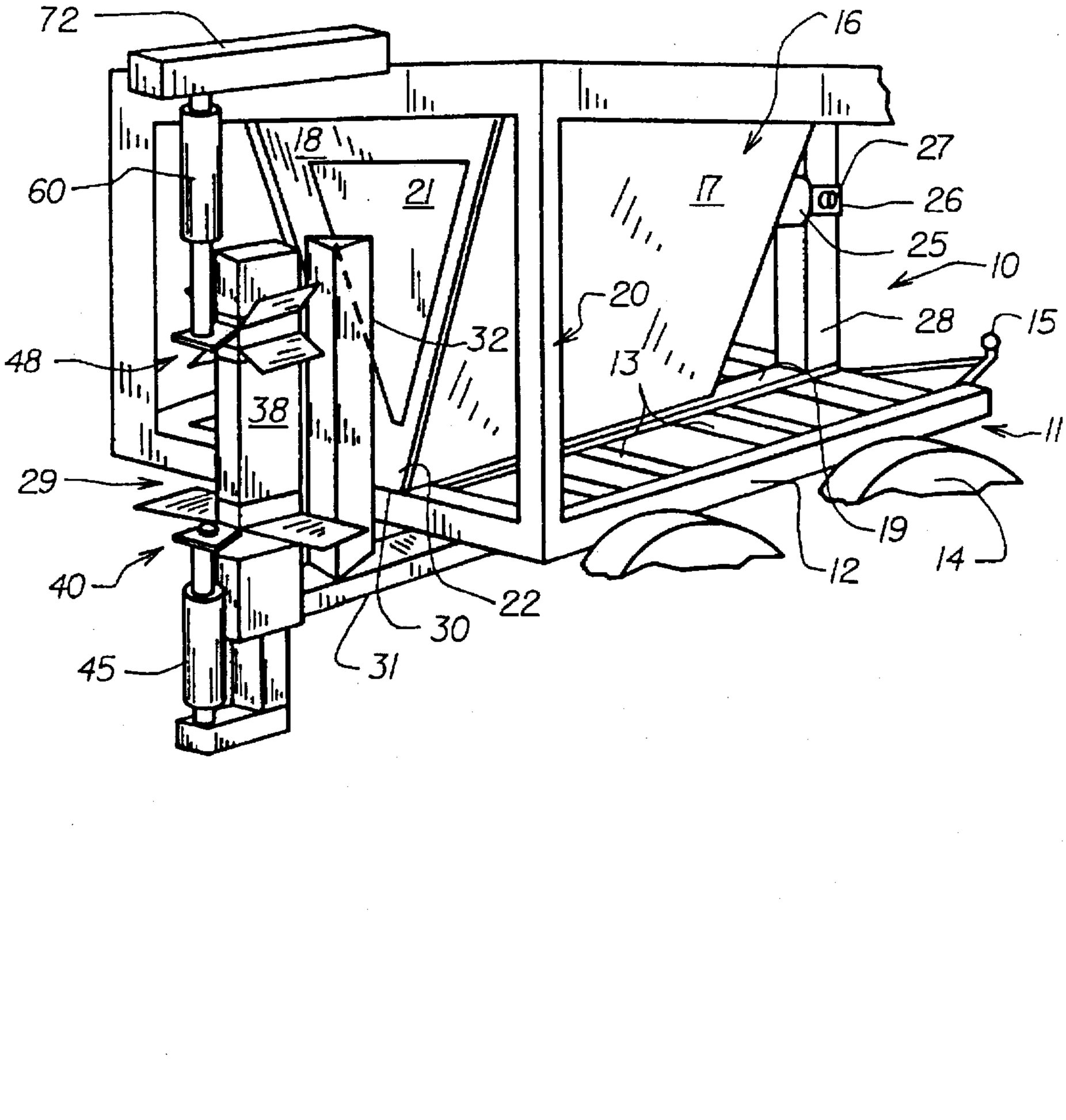
Attorney, Agent, or Firm—Norman B. Rainer

[57] **ABSTRACT**

An adjustable multi-wedge splitting head for a log splitting apparatus equipped with a ram for axially advancing pre-cut logs toward the splitting head in a horizontal direction includes a vertically oriented stationary post and a stationary triangular splitting wedge disposed between the post and the log to be split. The post holds upper and lower multiple splitting wedge assemblies which can be slideably positioned on the post by hydraulic cylinder/piston units. The triangular splitting wedge severs a log into two pieces. The wedge assemblies then sever the initially produced two pieces into smaller pieces, the number of which corresponds to the number of blades in the assembly positioned to interact with the log.

12 Claims, 2 Drawing Sheets



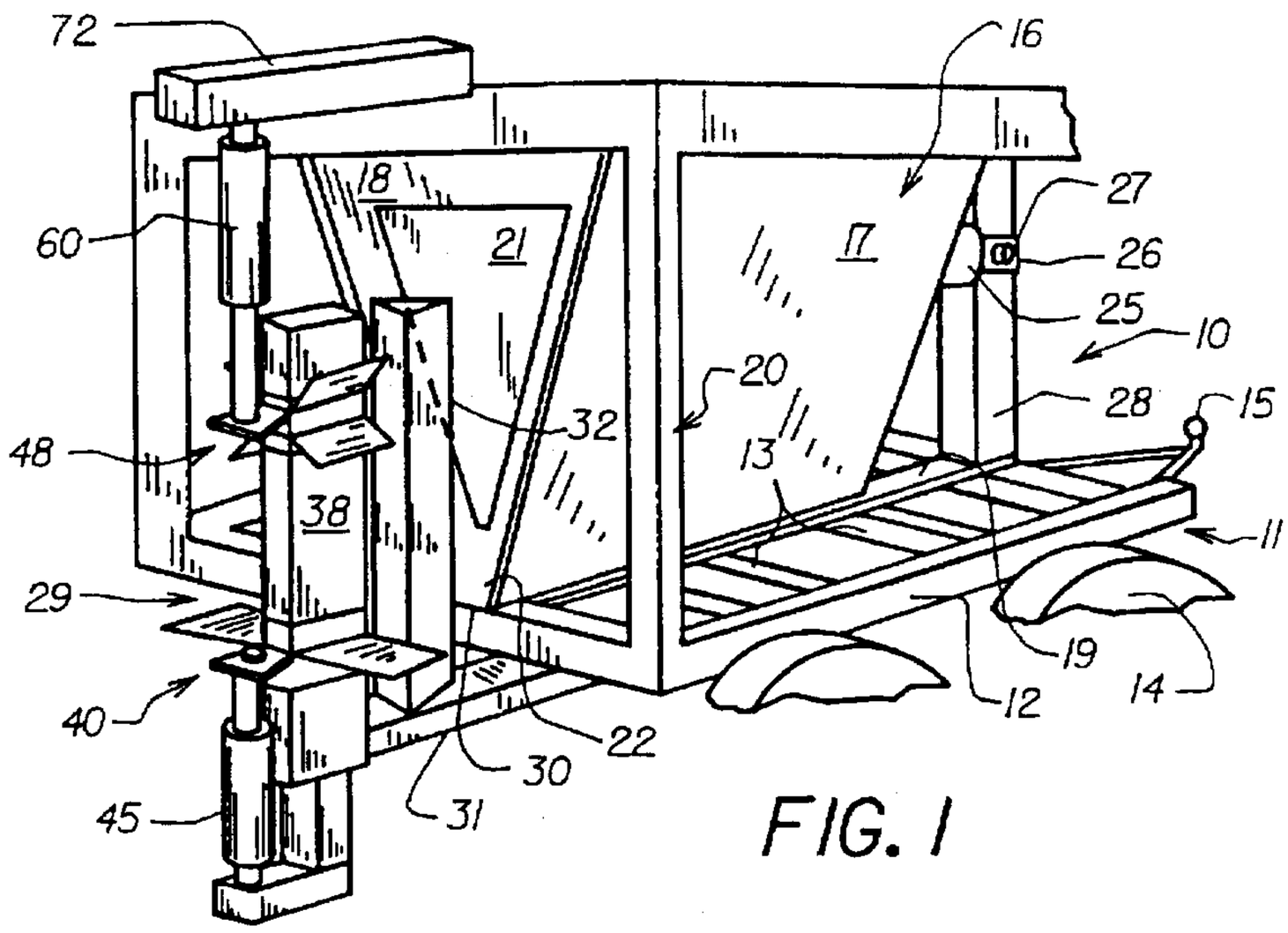

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FIG. 1

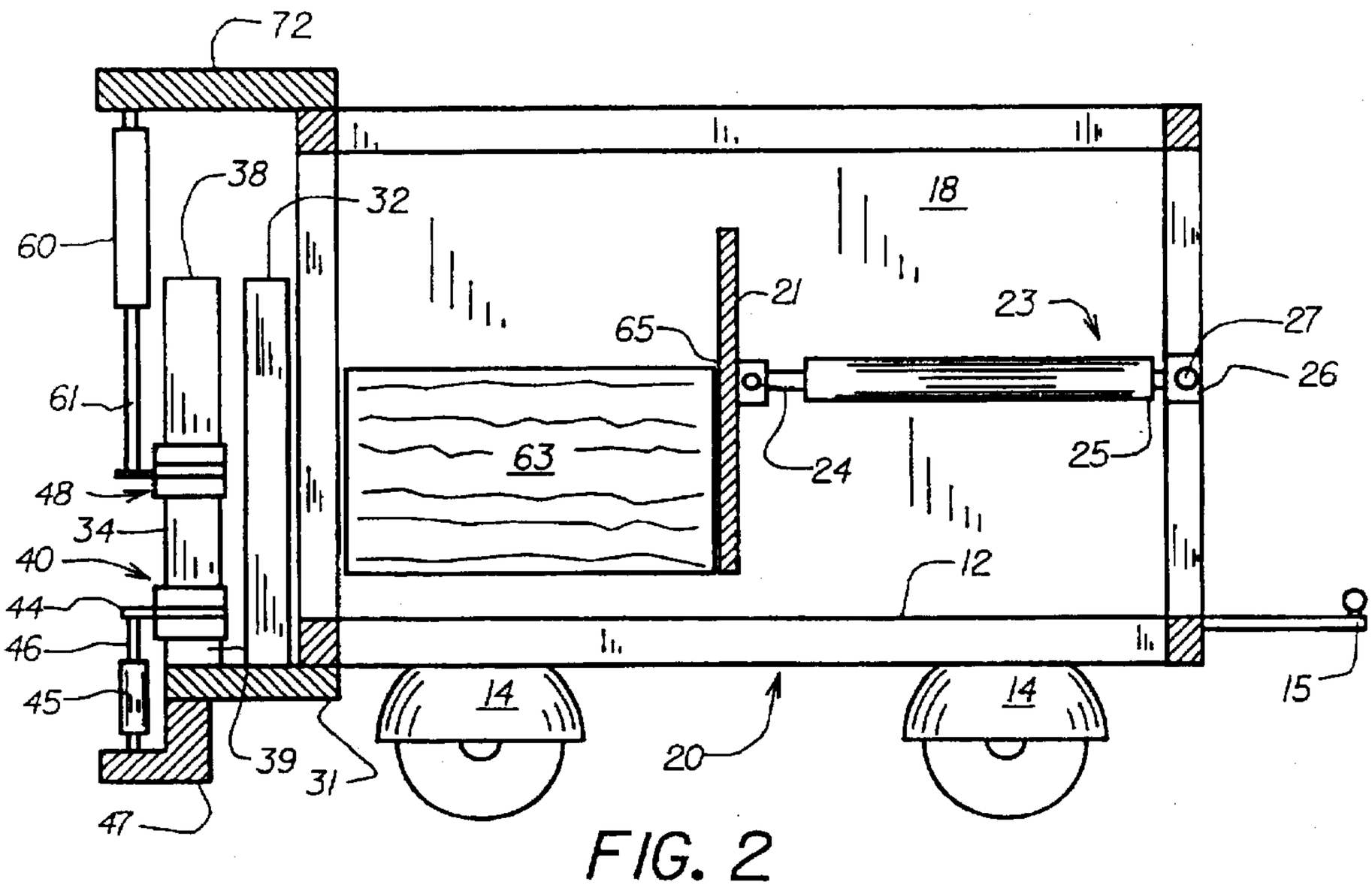
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FIG. 2

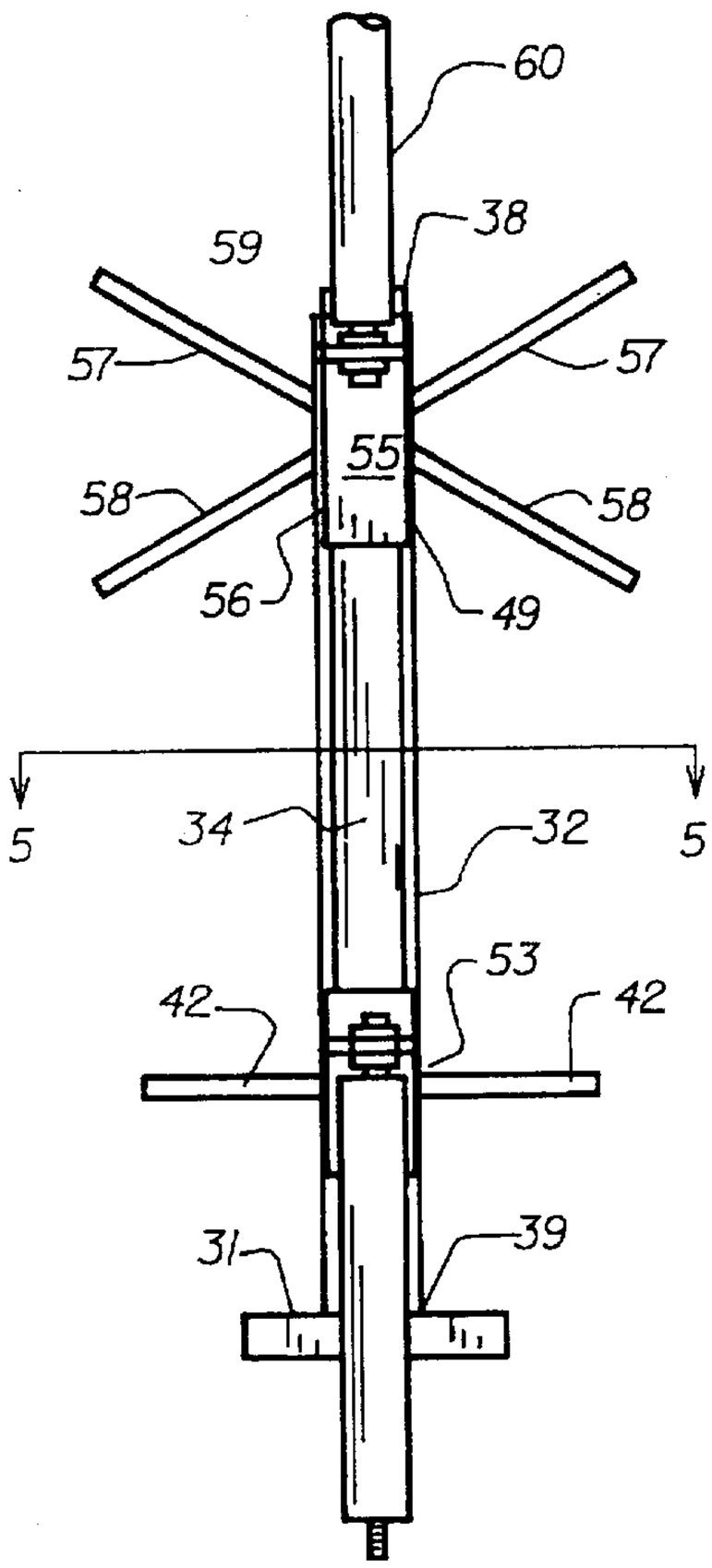

FIG. 3

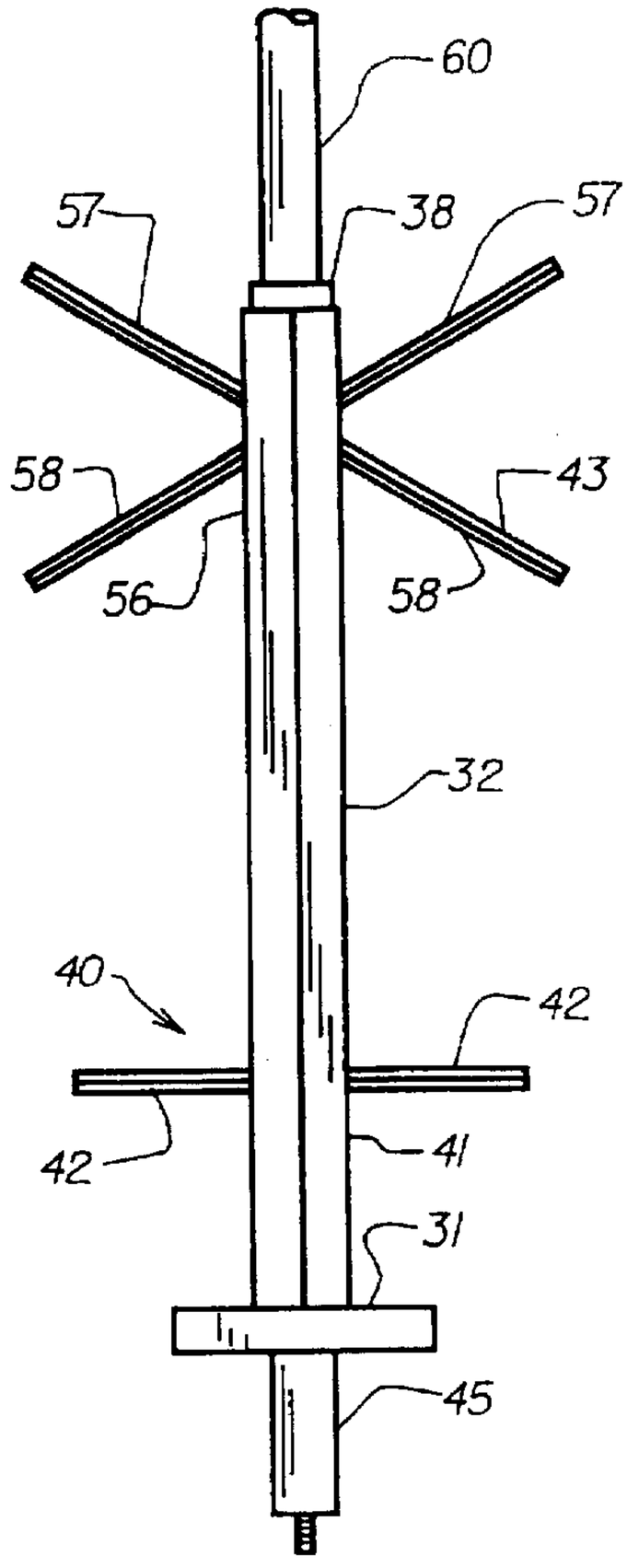

FIG. 4

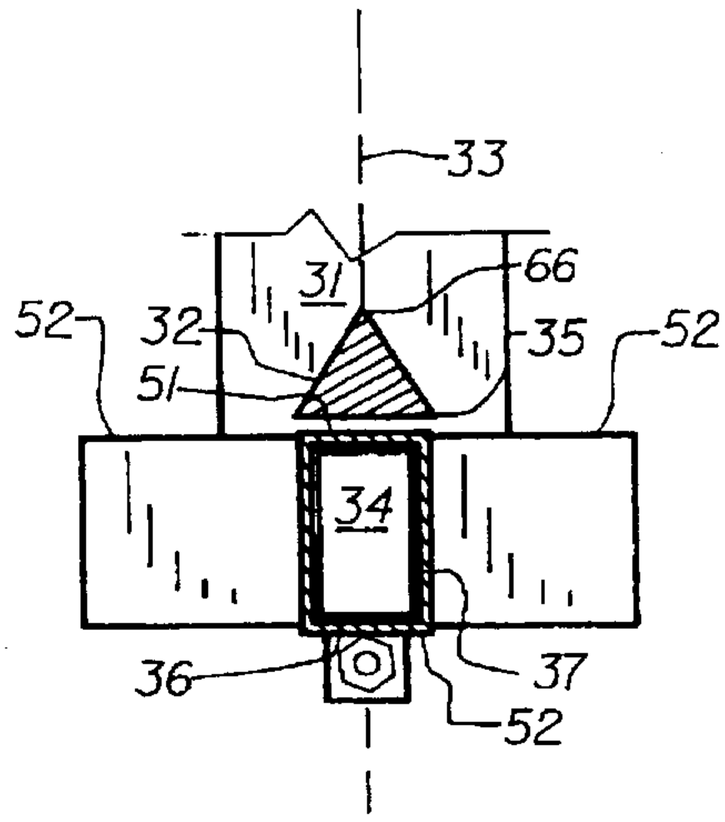

FIG. 5

ADJUSTABLE LOG SPLITTING HEAD

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to apparatus for the splitting of wooden logs into small pieces useful as firewood.

2. Description of the Prior Art

Devices for converting logs into firewood generally employ a ram-type mechanism which forces logs of pre-cut length into a stationary wedge having sharpened edges. As the log is axially advanced into the wedge, the log splits into a plurality of sector-shaped pieces along cleavage lines that are generally directed radially with respect to the center axis and along medullar rays of the log. Typical examples of such devices are disclosed in U.S. Pat. Nos. 4,294,295; 4,353,401; 4,371,019; 4,371,020; and 5,287,902.

The diameter of the logs fed to the splitting wedge may vary between about 4" and 24". The larger diameter logs must be cut into a greater number of pieces than the smaller diameter logs. In the course of cutting a sequence of logs, it often happens that logs of widely different diameter are encountered, thereby requiring frequent adjustment of the apparatus so that the appropriate number of pieces are generated from each log. Such. adjustment of the splitting conditions of the apparatus requires considerable operator time, thereby increasing the cost of the log-splitting operation.

U.S. Pat. No. 4,371,019 discloses a wedge which is adjustably positionable so as to center upon the log axis. However, none of the aforesaid patents disclose apparatus which permits quick and easy adjustment of the number of pieces to be generated from a given log.

Accordingly, a primary object of the present invention is to provide a wedge head for a log splitting apparatus whereby adjustment can be made so as to change the number of pieces that a given log will be split into.

It is another object of this invention to provide a wedge head as in the foregoing object wherein the adjustability of the splitting characteristic can be easily and quickly accomplished.

It is a further object of the present invention to provide a wedge head of the aforesaid nature which is of rugged and simple design amenable to low cost manufacture.

These objects and other objects and advantages of the invention will be apparent from the following description.

SUMMARY OF THE INVENTION

The above and other beneficial objects and advantages are accomplished in accordance with the present invention by an adjustable multi-wedge splitting head for a log splitting apparatus equipped with a ram and guide means for axially advancing pre-cut logs in a horizontal direction, said splitting head comprising:

a) a vertically oriented stationary post of substantially uniform rectangular cross-sectional configuration bounded by opposed front and rear flat surfaces, paired side surfaces, and upper and lower extremities,

b) an elongated straight stationary splitting wedge disposed in vertical orientation forwardly of said front surface,

c) upper and lower multiple splitting wedge assemblies slideably mounted upon and removable from said post, and

d) activating means which controllably slide said multiple wedges upon said post.

BRIEF DESCRIPTION OF THE DRAWING

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing forming a part of this specification and in which similar numerals of reference indicate corresponding parts in all the figures of the drawing:

FIG. **1** is a rear and side perspective view showing an embodiment of the splitting head of the present invention in association with a conventional log splitting apparatus.

FIG. **2** is a side view, partially in section, of the splitting head and apparatus of FIG. **1**.

FIG. **3** is a rear view of the splitting head of FIG. **1**.

FIG. **4** is a front view of the splitting head.

FIG. **5** is a sectional view taken in the direction of the arrows upon the line **5—5** of FIG. **3**.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, a mobile log splitting apparatus, generally designated **10**, embodying the present invention is shown comprised of a chassis or framework, generally designated **11**, which includes spaced longitudinally extending side members **12**, joined by spaced cross members **13**, to form a unitary structure. The chassis **11** is mounted on four wheels **14** in a conventional manner and is provided with a conventional trailer tongue **15** whereby the log splitting apparatus **10** may be attached, for example, to a pickup truck, tractor or other prime mover and transported to a desired location.

A generally V-shaped open top guide chute **16** is mounted on chassis **11** and extends longitudinally thereof, said guide chute being comprised of a pair of inclined side walls **17** and **18** supported at the apex of the V by a longitudinally extended stringer **19** on chassis **11**. The side walls **17** and **18** are also supported by a framework, generally designated **20** carried by the chassis **11**.

A drive member **21**, shown having a V-shaped contour is mounted for reciprocal movement in the generally V-shaped passageway **22** defined by side walls **17** and **18** of chute **16**. In other equivalent embodiments, said drive member may have other contours while maintaining a substantially flat rear face **65**. Said reciprocal movement of drive member **21** is achieved through the agency of a hydraulic ram **23** having a distal extremity **24** that engages the front face of drive member **21**. The proximal extremity **25** of ram **23** is secured by way of clevis **26** and pin **27** to a vertically extending beam **28** which forms a part of framework **20**.

In the illustrated embodiment, a multiple wedge splitting head **29** of the present invention is mounted on support beam **31** attached to framework **20** adjacent the exit rear end **30** of guide chute **16**. Splitting head **29** includes an elongated straight stationary splitting wedge **32** of triangular shape disposed in vertical orientation and centered upon a plane of symmetry **33** that bisects the V-shape of guide chute **16**. The forwardly directed cutting edge **66** of wedge **32** is disposed within said plane of symmetry.

A vertically oriented stationary post **34** of substantially uniform rectangular cross sectional configuration is positioned rearwardly of wedge **32** in alignment therewith in centered relationship upon plane **33**. Post **34** is bounded by opposed flat front and rear surfaces **35** and **36**, respectively, paired flat side surfaces **37**, and upper and lower extremities **38** and **39**, respectively. It is to be noted that, whereas lower extremity **39** abuts against support beam **31**, to which it is

attached, upper extremity **38** is free and unencumbered. In alternative embodiments, however, supporting arms attached to framework **20** may removably engage the upper extremity of post **34**.

A lower multiple splitting wedge assembly **40** includes a collar **41** slideably positionable upon post **34**, and comprised of forward and back panels **51** and **52**, respectively, and opposed side panels **53**. Wedge members **42** are horizontally emergent from side panels **53** and have forwardly directed sharp edges **52**. Activating means in the form of hydraulic cylinder **45** having piston rod **46**, is interactive between control tab **44** rearwardly emergent from back panel **52**, and lower securing means in the form of L-shaped bracket beam **47** pendently secured to support beam **31**.

An upper multiple splitting wedge assembly **48** includes a collar **49** slideably positionable upon post **34**, and comprised of forward and back panels **54** and **55**, respectively, and opposed side panels **56**. An upper pair of wedge members **57** is emergent from side panels **56** in upwardly angled disposition. A lower pair of wedge members **58** is emergent from side panels **56** in downwardly angled disposition. All said wedge members have forwardly directed sharp edges **43**. A control tab **59** is attached to back panel **55**. Activating means in the form of hydraulic cylinder **60** having piston rod **61** is interactive between control tab **59** and upper securing means in the form of overhead beam **72** attached to framework **20**.

In the operation of the splitting head of the present invention, a log **63** having a pre-cut length of between about **15** and **25** inches is dropped into chute **16** from overhead supply means. Drive member **21** is then urged against the log by ram **23**, an action which forces the opposite extremity of the log into contact with stationary vertical wedge **32**, with consequent cleavage of the log into two halves.

When upper wedge assembly **48** is positioned above the log, and lower wedge assembly **40** is centered upon the axis of the log, the two horizontally disposed wedge members **42** split in two the two halves of the log, thereby producing four pieces of firewood from the initial log. Alternatively, when, lower wedge assembly **40** is positioned below the log and, upper wedge assembly **48** is centered upon the axis of the log, the upper and lower pairs of wedge members split into three sectors each half of the log, thereby producing six pieces of firewood from the initial log.

For further adjustability, the upper wedge assembly **48** can be easily removed from post **34** by upward movement, and replaced with an assembly having three pairs of wedge members, thereby producing eight pieces of firewood from the initial log.

In an alternative embodiment of the adjustable multi-wedge splitting head of the present invention, the vertical post is not employed, and the wedge assemblies are slideably mounted upon and removable from the stationary splitting wedge

While particular examples of the present invention have been shown and described, it is apparent that changes and modifications may be made therein without departing from the invention in its broadest aspects. The aim of the appended claims, therefore is to cover all such changes and modifications as fall within the true spirit and scope of the invention.

Having thus described my invention, what is claimed is:

1. An adjustable multi-wedge splitting head for a log splitting apparatus equipped with a ram and guide means for axially advancing pre-cut logs toward said splitting head in a horizontal direction, said splitting head comprising:

a) a vertically oriented stationary post of substantially uniform rectangular cross-sectional configuration bounded by opposed front and rear flat surfaces, paired side surfaces, and upper and lower extremities,

b) an elongated straight stationary splitting wedge disposed in vertical orientation forwardly of said front surface,

c) upper and lower multiple splitting wedge assemblies slideably mounted upon and removable from said post, and

d) activating means which controllably slide said multiple splitting wedge assemblies upon said post.

2. The splitting head of claim **1** wherein said guide means is of generally upwardly opening V-shaped contour.

3. The splitting head of claim **2** having a vertical plane of symmetry that bisects said guide means.

4. The splitting head of claim **3** wherein said stationary splitting wedge is of triangular shape, having a forwardly directed cutting edge disposed within said plane of symmetry.

5. The splitting head of claim **1** wherein said activating means are hydraulic cylinders.

6. The splitting head of claim **1** wherein each wedge assembly is comprised of a collar slideably positionable upon said stationary post and having forward, back and opposed side panels, and wedge members emergent from said side panels.

7. The splitting head of claim **1** wherein the back panel of said collar is provided with a control tab which engages said activating means.

8. The splitting head of claim **1** wherein said splitting wedge assemblies can be removed from said post by sliding upward beyond the upper extremity of said post.

9. The splitting head of claim **1** wherein said log splitting apparatus is further equipped with an exterior framework that serves to secure the various components of said apparatus.

10. The splitting head of claim **9** wherein said activating means is interactive between said framework and said splitting wedge assemblies.

11. A log splitting apparatus comprising a wheeled framework having a ram and guide means for axially advancing pre-cut logs in a horizontal direction toward a splitting head of claim **1**.

12. An adjustable multi-wedge splitting head for a log splitting apparatus equipped with a ram and guide means for axially advancing pre-cut logs toward said splitting head in a horizontal direction, said splitting head comprising:

a) an elongated straight stationary splitting wedge disposed in vertical orientation,

b) upper and lower multiple splitting wedge assemblies slideably mounted upon and removable from said splitting wedge, and

c) activating means which controllably slide said multiple splitting wedge assemblies upon said splitting wedge.

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